All-Hazards Meteorologist Plan

In the increasingly dangerous world we live in, and with the additional responsibilities being taken on by the National Weather Service (NWS), there is a need to expand the knowledge base and capabilities at the local NWS level to handle these new challenges. Among these hazards are terrorism (nuclear, biological, chemical) and hazardous materials incidents (intentional and accidental). As members of the *new* National Response Plan (which includes the older Federal Response Plan) we may be called upon to support other agencies. In addition, and more likely, we will be requested to support local events not requiring a full national response.

A method to accomplish, or at least begin, this process would be for a training plan to provide this additional all hazards knowledge to the Incident Meteorologist (IMET). Much of the training required for fire weather forecasting applies to these other incidents. By expanding their knowledge base they can easily provide support for other events.

Vision:

Develop an all-hazards meteorologist program to provide on-site and off-site support to emergency managers and other first responders for a wide variety of hazardous materials incidents and terrorism.

Goals:

- ❑ Expand upon the fire weather incident meteorologist program to include all hazards
- ❑ Define a training program that is comprehensive
- ❑ Increase visibility of the NWS to first responders so they are aware of services that we can provide
- ❑ Work with local and state emergency managers and other first responders in a training environment to promote familiarity with each others' operations
- ❑ Assist with the mission of the Department of Homeland Security

Role/Function of the All-Hazards Meteorologist:

In addition to the normal role as an Incident Meteorologist (fire weather):

- Interact with emergency managers and first responders
  - Assist in pre-planning for emergencies
  - Assist with drills/exercises and evaluations
- Training WFO staff on all hazards
  - Design a training program, in concert with SOO,
- Incident support
  - On-site....collection of meteorological data, plume modeling, forecasts
  - Off-site....obtain on-scene meteorological/topographical information,

incident details, plume modeling, forecasts
  - Provide information to responders for approach to incidents and where to set up command post
- Support Regional Response Teams (under National Response Plan)

Training:

Based on the goals, training is accomplished in the following way:

- ❑ State-sponsored FEMA courses which are normally cost-free (other than travel expenses)
- ❑ Independent Study courses offered by FEMA, National Fire Academy (NFA), and others
- ❑ Locally offered courses via the Red Cross, law enforcement, fire service, or emergency management

The following list of courses is a recommended guideline to the training required. Courses are changing dynamically, especially in the area of terrorism, and as a result there are comparable courses available which could be substituted. This is obviously a base or minimum level from which training could be expanded.

Descriptions of most of the courses can be obtained by linking to the FEMA website at www.fema.gov .

Recommended Residence Courses

Course	***Source of Training***	***Content***
FEMA G230 Intro to EM (24)	State EMA	Principles/Operations of EM
G120/130 Exercises (40)	State EMA	Design/evaluation of exercises
G290 Public Info (28)	State EMA	Interview skills/techniques
G385 Disaster Response (24)	State EMA	Roles/coordination
G326.1 Radiological (12)	State EMA	Concepts of radiation
G191 ICS/EOC (16)	State EMA	ICS/EOC responsibilities
G357 Criminal/Terrorist (12)	State EMA	Response to terrorist incidents
EPA 165.15 HAZMAT (40)*	State EMA	Emergency Response
CAMEO/ALOHA (32)	Local/State EMA	Hazmat plume modeling
S-591 Fire Weather (40)	Boise Interagency	Principles of fire weather
S-390 Fire Behavior (32)**	Various locations	Take after S-591 and S-290
S-490 Adv. Fire (32)**	Various locations	Recommended (after S-390)
DOD/Others AWR-101 Terrorist(16)	DOD/Others	Response to terrorism

Training Hours in ( ) Total Hours - 348. *Total may vary from state to state.*
**Fire Service Awareness and Operations Level HAZMAT may be substituted for this course*
***Pretest required*

Independent Study Courses

Course	*Source of Training*	*When To Take*
FEMA IS-230 Principles EM	FEMA	Take prior to G-230
IS-139 Exercise Design	FEMA	Take prior to G-120/130
IS-195 ICS*	FEMA	Take prior to G-191
IS-242 Effective Comm.	FEMA	Take prior to G-290
IS-301 Radiological	FEMA	Take prior to G-326.1
IS-275 EOC	FEMA	Take prior to G-191
IS-5 HAZMAT	FEMA	Take prior to EPA165.15
USFA G534 Response Terrorism	USFA	Take prior to G-357
DOI S-290 Inter. Wildland	CD-ROM	Take after S-591
UCAR Cameo/Hysplit webcast	COMET	Take prior to residence course
Hydrology for the Met.	COMET	
Basic Hydrologic Concepts	NWSTC	

**Boise I-100 ICS Orientation may be substituted for this course*

Other Requirements

- ❑ IMET certification (in addition to above, field training is required). Re-certification required every 18 months
- ❑ Membership on at least one Local Emergency Planning Committee (LEPC), if available
- ❑ Knowledge of communications systems and delivery systems of weather information
  - -AMRS (All Meteorological Response System)
  - -EMWIN
  - -Amateur Radio and other radio systems (VHF, UHF)
  - -IFLOWS (if applicable)
  - -EAS/NWR
  - -ASOS, data buoys
- ❑ Other plume and dispersion models
  - -HYSPLIT
  - -Hydrologic

Sources of training include, but are not limited to:

- State Emergency Management

- FEMA - Emergency Management Institute (EMI)
- National Fire Academy (NFA)
- American Red Cross (ARC) and local chapters
- Environmental Protection Agency (EPA)
- Department of Defense (DOD)
- Department of Justice (DOJ)
- Local fire service
- NOAA - COMET
- National Interagency Fire Center (NIFC)
- Department of Homeland Security (DHS)

Training Time Frame and Certification:

Training is on-going and is a function of when courses are offered, especially at the state-level. Some states offer much more training than others. If you are in close proximity to other states, you can take advantage of their training. Most training agencies are more than happy to accommodate NWS personnel in their classes.

Once training has been completed, certification as a HAZMET meteorologist would be given. This is in addition to the certification received as an IMET once those requirements are met.

Future:

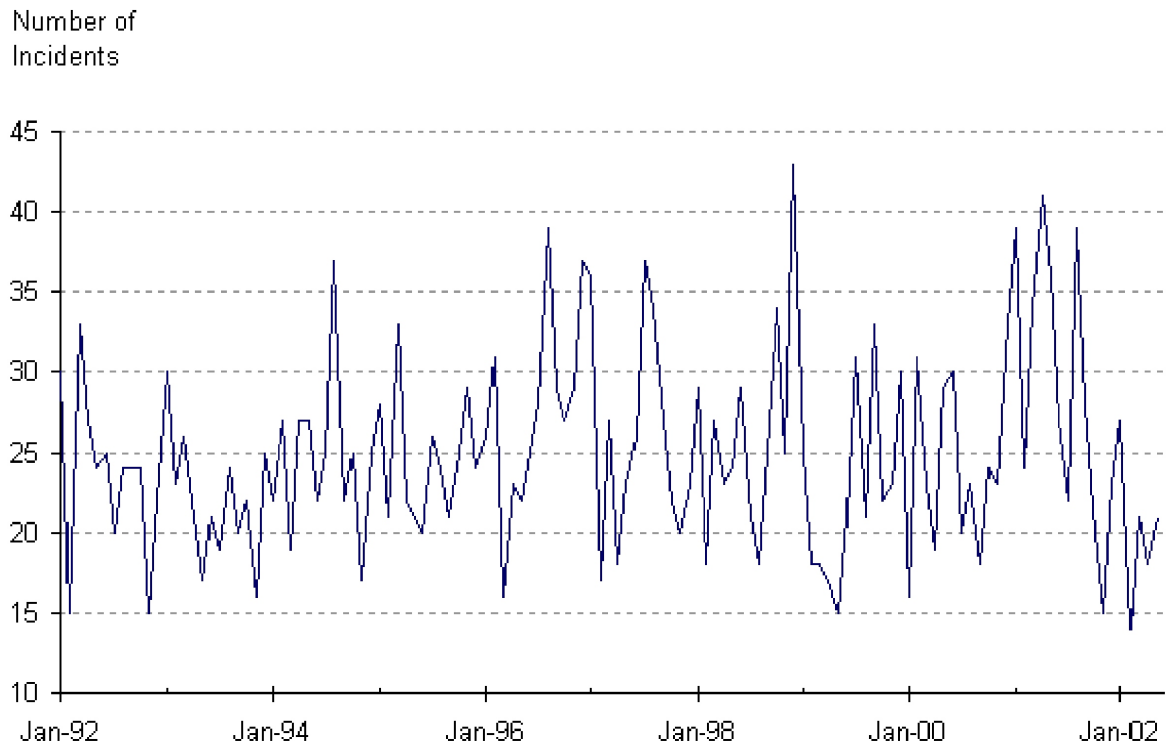
Utilize current pool of IMETs as the core for the HAZMET program and proceed with training program working with SSD and the SOO's. Develop a plan for staffing all WFO's with a HAZMET. This certainly can be justified given the logarithmic rise in hazardous materials incidents as well as the threats of terrorism.

Mode of Transporation	Number of Accidents	Associated Deaths	Associated Injuries
AIR	1,220	0	153
HIGHWAY	41,781	79	1,569
RAILWAY	7,886	1	423
WATER	83	1	35
OTHER	29	0	2
TOTAL	50,999	81	2,182

Hazardous Materials Incidents by Transportation Mode (totals, 1983 thru 1990*)

Between 1982 and 1991, there were an annual average of 6,774 hazardous materials transportation incidents. In 1991, there were 9,069 transportation incidents that resulted in 10 deaths and 436 injuries.

Number of Crashes or Derailments Involving Hazardous Materials



Source: U.S. Department of Transportation

Given the additional duties of preparedness work and outreach, the position needs to be funded as an additional staff member.

Source:
http://hazmat.dot.gov/files/hazmat/10year/10yearfrm.htm

U.S. Department of transportation
Hazardous Materials Safety
Hazardous Materials Information System

Incidents By Mode and Incident Year

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Air	931	817	925	1,031	1,386	1,582	1,419	1,084	734	753	10,662
Highway	14,011	12,869	12,034	11,932	13,111	14,953	15,063	15,909	13,825	13,373	137,080
Railway	1,157	1,155	1,112	1,102	989	1,073	1,058	899	872	807	10,224
Water	6	12	6	5	11	8	17	5	9	10	89
Other	0	0	0	0	0	0	0	0	0	0	0
Total	16,105	14,853	14,077	14,070	15,497	17,616	17,557	17,897	15,440	14,943	158,055

Deaths By Mode and Incident Year

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Air	0	0	110	0	0	0	0	0	0	0	110
Highway	11	7	8	12	13	9	16	11	6	7	100
Railway	0	0	2	0	0	0	0	0	1	0	3
Water	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0
Total	11	7	120	12	13	9	16	11	7	7	213

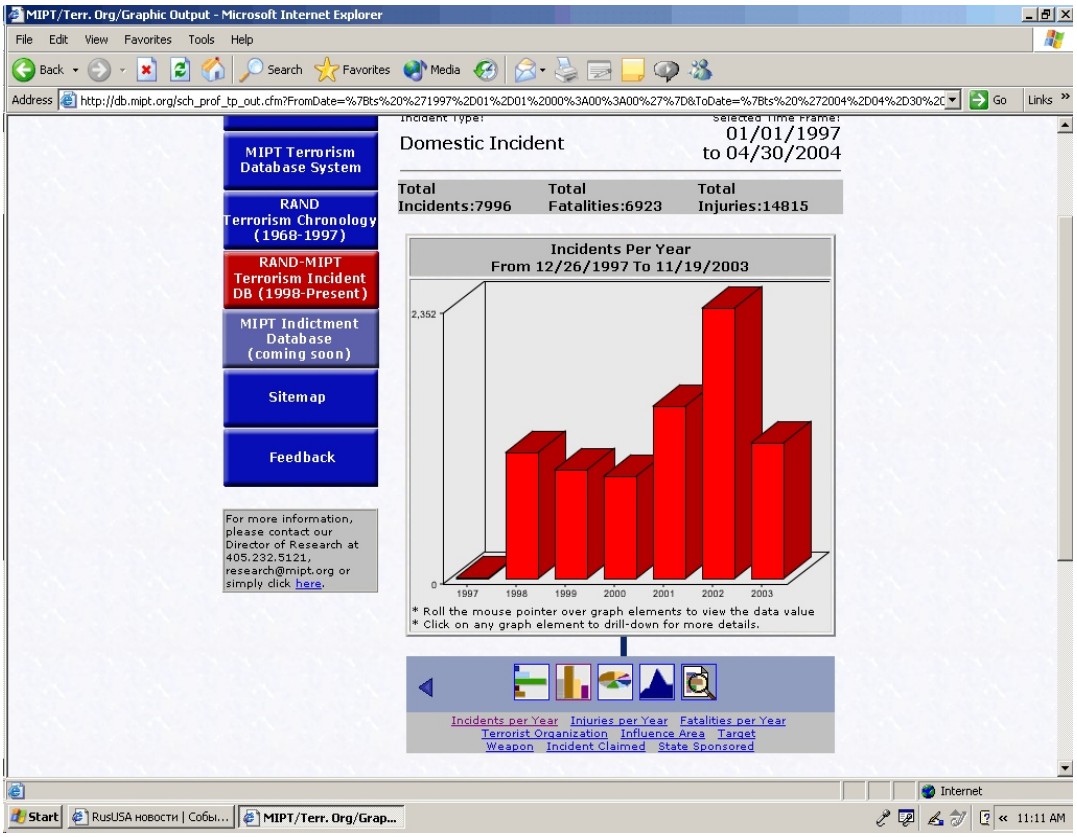
Injuries By Mode and Incident Year

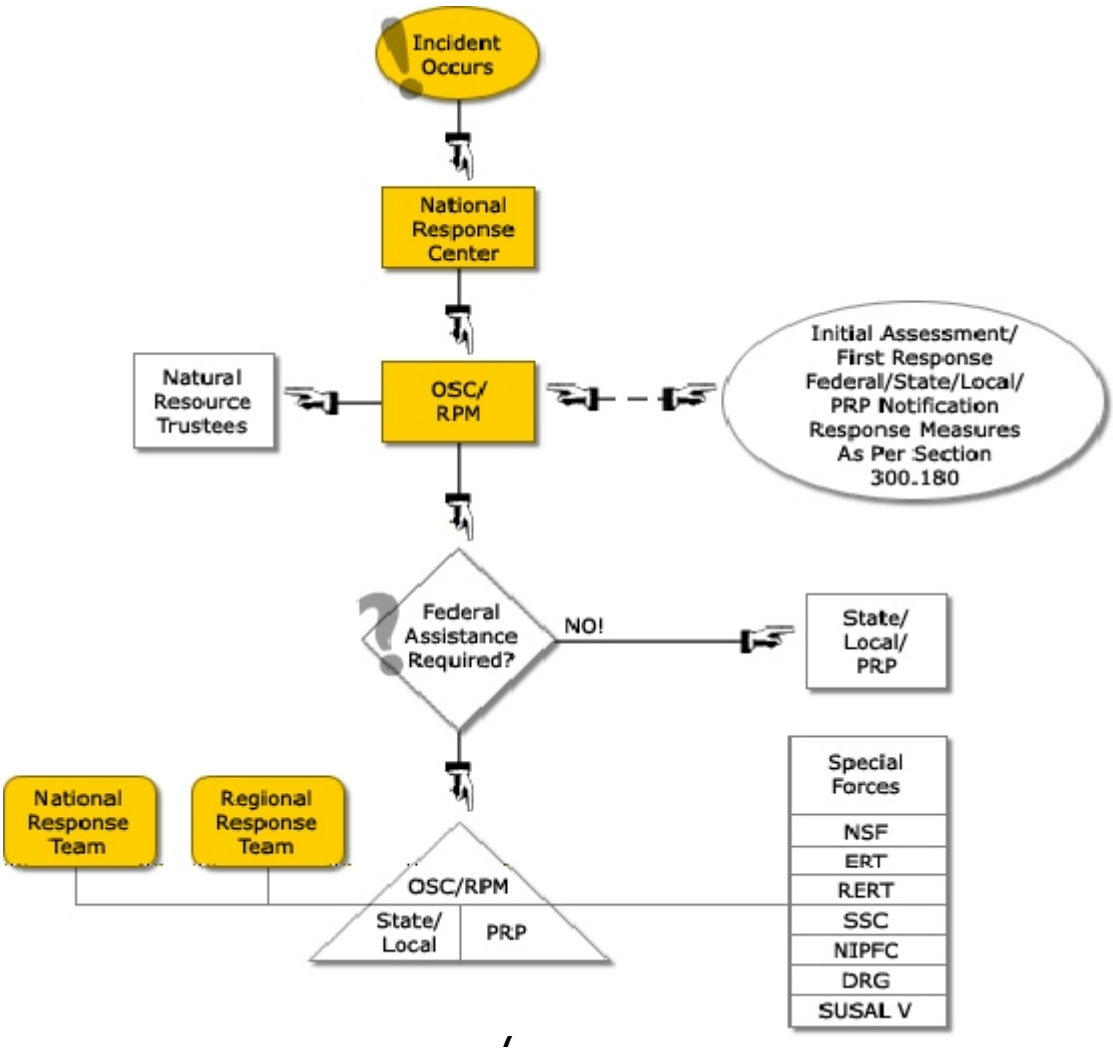
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Air	57	33	33	24	20	12	5	13	4	1	202
Highway	425	296	216	152	151	217	164	126	115	96	1,958
Railway	95	71	926	45	22	35	82	29	14	13	1,332
Water	0	0	0	0	2	0	0	0	0	0	2
Other	0	0	0	0	0	0	0	0	0	0	0
Total	577	400	1,175	221	195	264	251	168	133	110	3,494

Damages By Mode and Incident Year

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Air	177,695	100,431	87,188	336,178	266,628	286,104	271,629	309,189	109,135	100,483	2,044,660
Highway	25,253,213	22,141,089	29,256,951	24,741,052	28,668,607	34,359,418	50,907,054	47,685,354	43,236,634	36,964,585	343,213,957
Railway	18,673,002	8,485,159	17,385,078	8,418,188	16,242,506	30,694,452	26,546,958	21,247,655	9,705,954	4,113,920	161,512,872
Water	92,003	173,511	120,146	38,145	1,014,931	60,500	283,183	47,361	247,802	260,574	2,338,156
Other	0	0	0	0	0	0	0	0	0	0	0
Total	44,195,913	30,900,190	46,849,363	33,533,563	46,192,672	65,400,474	78,008,824	69,289,559	53,299,525	41,439,562	509,109,645

Source: Hazardous Materials Information System, U.S. Department of Transportation. Data as of 04/12/2004


MIPT/Terr. Org/Graphic Output - Microsoft Internet Explorer
MIPT Terrorism Database System
RAND Terrorism Chronology (1968-1997)
RAND-MIPT Terrorism Incident DB (1998-Present)
MIPT Indictment Database (coming soon)
Sitemap
Feedback
For more information, please contact our Director of Research at 405.232.5121, research@mipt.org or simply click here.
Domestic Incident
01/01/1997 to 04/30/2004
Total Incidents:7996
Total Fatalities:6923
Total Injuries:14815
Incidents Per Year From 12/26/1997 To 11/19/2003
2,352
0
1997
1998
1999
2000
2001
2002
2003
* Roll the mouse pointer over graph elements to view the data value
* Click on any graph element to drill-down for more details.
Incidents per Year
Injuries per Year
Fatalities per Year
Terrorist Organization
Influence Area
Target
Weapon
Incident Claimed
State Sponsored


Incident Occurs
National Response Center
Natural Resource Trustees
OSC/ RPM
Initial Assessment/ First Response Federal/State/Local/ PRP Notification Response Measures As Per Section 300.180
Federal Assistance Required?
NO!
State/ Local/ PRP
National Response Team
Regional Response Team
OSC/RPM
State/ Local
PRP
Special Forces
NSF
ERT
RERT
SSC
NIPFC
DRG
SUSAL V